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APPLICATION NUMBER: 60/601,751

FILING DATE: *August 14, 2004*

RELATED PCT APPLICATION NUMBER: PCT/US05/12636

THE COUNTRY CODE AND NUMBER OF YOUR PRIORITY APPLICATION, TO BE USED FOR FILING ABROAD UNDER THE PARIS CONVENTION, IS *US60/601,751*



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21861 U.S. PTO
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PROVISIONAL APPLICATION FOR PATENT COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53(c).

Express Mail Label No.

ED294675415US

INVENTOR(S)					
Given Name (first and middle [if any])		Family Name or Surname		Residence (City and either State or Foreign Country)	
Joshua William		Dick Coulter		New York, NY New York, NY	
Additional inventors are being named on the _____ separately numbered sheets attached hereto					
TITLE OF THE INVENTION (500 characters max)					
SYSTEM AND METHOD FOR CLEANING COFFEE GRINDING MACHINE					
Direct all correspondence to: CORRESPONDENCE ADDRESS					
<input type="checkbox"/> Customer Number: _____					
OR					
<input checked="" type="checkbox"/> Firm or Individual Name		Romi Bpse			
Address		1157 Bayon Ct			
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ENCLOSED APPLICATION PARTS (check all that apply)					
<input checked="" type="checkbox"/> Specification Number of Pages 10		<input type="checkbox"/> CD(s), Number _____			
<input checked="" type="checkbox"/> Drawing(s) Number of Sheets 2		<input type="checkbox"/> Other (specify) _____			
<input type="checkbox"/> Application Data Sheet. See 37 CFR 1.76					
METHOD OF PAYMENT OF FILING FEES FOR THIS PROVISIONAL APPLICATION FOR PATENT					
<input checked="" type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27.					FILING FEE Amount (\$) 80
<input type="checkbox"/> A check or money order is enclosed to cover the filing fees.					
<input type="checkbox"/> The Director is hereby authorized to charge filing fees or credit any overpayment to Deposit Account Number: _____					
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The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.					
<input checked="" type="checkbox"/> No.					
<input type="checkbox"/> Yes, the name of the U.S. Government agency and the Government contract number are: _____					

[Page 1 of 2]

Respectfully submitted,

SIGNATURE

TYPED or PRINTED NAME Romi Bose

TELEPHONE 630-355-5144

Date August 14, 2004

REGISTRATION NO. 43,322

(if appropriate)

Docket Number: 0003-0004Prov

USE ONLY FOR FILING A PROVISIONAL APPLICATION FOR PATENT

This collection of information is required by 37 CFR 1.51. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 8 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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FEE TRANSMITTAL for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

☒ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$ 80

Complete if Known

Application Number	
Filing Date	August 14, 2004
First Named Inventor	Joshua Dick
Examiner Name	
Art Unit	
Attorney Docket No.	0003-0004Prov

METHOD OF PAYMENT (check all that apply)

☐ Check ☒ Credit card ☐ Money Order ☐ Other ☐ None

☐ Deposit Account:

Deposit Account Number	
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The Director is authorized to: (check all that apply)

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FEE CALCULATION

1. BASIC FILING FEE

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1001	770	2001	385	Utility filing fee	
1002	340	2002	170	Design filing fee	
1003	530	2003	265	Plant filing fee	
1004	770	2004	385	Reissue filing fee	
1005	160	2005	80	Provisional filing fee	80
SUBTOTAL (1)					(\$ 80

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

Total Claims		Extra Claims		Fee from below		Fee Paid	
Independent Claims		-20** =		X		=	
Multiple Dependent		-3** =		X		=	

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1202	18	2202	9	Claims in excess of 20	
1201	86	2201	43	Independent claims in excess of 3	
1203	290	2203	145	Multiple dependent claim, if not paid	
1204	86	2204	43	** Reissue independent claims over original patent	
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent	

SUBTOTAL (2) (\$)

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)

3. ADDITIONAL FEES

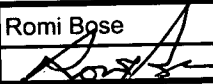
Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for ex parte reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	
1252	420	2252	210	Extension for reply within second month	
1253	950	2253	475	Extension for reply within third month	
1254	1,480	2254	740	Extension for reply within fourth month	
1255	2,010	2255	1,005	Extension for reply within fifth month	
1401	330	2401	165	Notice of Appeal	
1402	330	2402	165	Filing a brief in support of an appeal	
1403	290	2403	145	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive - unavoidable	
1453	1,330	2453	665	Petition to revive - unintentional	
1501	1,330	2501	665	Utility issue fee (or reissue)	
1502	480	2502	240	Design issue fee	
1503	640	2503	320	Plant issue fee	
1460	130	1460	130	Petitions to the Commissioner	
1807	50	1807	50	Processing fee under 37 CFR 1.17(q)	
1806	180	1806	180	Submission of Information Disclosure Stmt	
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	770	2809	385	Filing a submission after final rejection (37 CFR 1.129(a))	
1810	770	2810	385	For each additional invention to be examined (37 CFR 1.129(b))	
1801	770	2801	385	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	

Other fee (specify)

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SUBTOTAL (3) (\$)

SUBMITTED BY

Name (Print/Type)	Romi Bose	Registration No. (Attorney/Agent)	43,322	Telephone	630-355-5144
Signature		Date	Aug 14, 2004		

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SYSTEM AND METHOD FOR CLEANING COFFEE GRINDING MACHINE

Field of the Invention:

This invention relates generally to cleaning coffee grinders and, more particularly, to a method, formulation, and procedure for cleaning and removing accumulated particle and oil residue in home or commercial coffee grinders.

Background:

The optimal preparation of coffee is dependent on bean quality, roast execution, grind consistency, product freshness, and equipment cleanliness. After harvest and drying, whole coffee beans are roasted. Roasting serves to draw out the beans' essential oils in preparation for the brewing process. After roasting, and just prior to brewing, the beans are ground. Grinding increases the coffee bean surface area available for the extraction of coffee oils during brewing.

It is generally agreed that the optimal taste profile of coffee is achieved when the time between grinding and brewing is the shortest possible. It is also accepted that the taste of the highest quality coffee beans can be easily contaminated. The most common cause of this contamination is the commingling of fresh beans with rancid coffee oil and particulate residue left behind from previous preparations.

In an effort to minimize the time between grinding and brewing coffee, there are coffee bean grinders in place in the vast majority of supermarkets, grocery stores, restaurants, and coffee retailers around the world. Many households also own grinding appliances to further reduce the time between grinding and brewing.

The coffee industry follows a rigorous procedure of cleaning coffee brewing equipment to insure the removal of coffee oil residue from servers, faucets, urns, decanters, filter baskets, screens, porta-filters, and even whole bean containers. These cleaning

procedures are based on an effort to reduce the chance of contamination of fresh beans or brewed coffee with rancid residue and old bean particles. While procedures and products exist for cleaning brewing equipment of all varieties there is no standard method, procedure, or product for removal of coffee oil residue or particles from grinding equipment.

Since grinding is the first step in the brewing procedure, it is also the first opportunity for accumulated coffee oil residue (which has possibly turned rancid) to contaminate freshly ground beans. Each time a bean is ground, there is an opportunity for it to contact the grinder burrs or blades. These components may often be coated with coffee residue.

Aside from the possible contamination of freshly ground beans by the oily residue of previously ground beans, there is also a grinder cleaning issue surrounding "flavored coffees." Flavored coffees are roasted coffee beans that have been commercially infused with essential oils and flavorings. This is done to enhance their taste and aroma. Some popular flavored coffees include hazelnut, amaretto, vanilla, and raspberry.

The brewing preparation methods for flavored coffee are identical to those of non-flavored coffees. This includes the need to grind the beans before extraction of essential oils from the coffee -- both natural and added oils. While it has already been established that the oils of natural coffee beans accumulate in grinders, it should be noted that the added oils of flavored coffees can also accumulate in grinders.

One issue that arises with the accumulation of flavorings in grinders is co-mingling when residue from one flavor variety is ground after another in the same grinder. Most retailers have only one grinder for all flavored coffees and a second for non-flavored coffees. While this removes the chance of flavoring un-flavored beans, it does not eliminate cross contamination of two different flavor types.

In addition to the problems of cross-contaminated flavorings, the added oils in flavored coffee have a tendency to “gum up” grinder burrs and blades. The flavoring additives create a sticky substrate that can affect grinder effectiveness. Unfortunately, regardless of the possibly substantial mechanical effect of oily accumulation on grinders, the accumulated oils are certain to infuse and contaminate all subsequent batches of coffee.

At present, there are only two known techniques for purging of oil and particle accumulation in coffee grinding equipment. Due to the fact that most commercial and home grinding burrs are made of either steel or ceramic and held in tight spaces near electrical motors, water or other liquids cannot be introduced into the grinding chamber. Adding liquid could either rust the steel burrs or damage electrical circuitry. As a result, both current procedures have major challenges.

Most grinder manufacturers and sellers will recommend periodic disassembly of grinders and brushing of burr teeth and wheels with a soft bristle. While effective at removing particle residue, this technique is both time consuming and complicated. In addition, the process of brushing does nothing to absorb or remove oil residue.

A second much less frequently discussed grinder cleaning technique is the delivery of common, uncooked rice into the grinding chamber. While this technique does provide the possibility of a quick and easy approach to trying to purge the burrs of coffee residue, the starchy nature of rice, the inaccurate portioning guidelines, and the gummy residue of rice does not provide a reliable solution.

Drawings:

The features of the present invention are set forth with particularity in the appended claims. The invention itself, together with further features and attendant advantages, will become apparent from consideration of the following detailed description, taken in conjunction with the accompanying drawings. An exemplary embodiment of the

invention is now described, by way of example only, with reference to the accompanying drawings in which:

FIG. 1 is a side view of a coffee grinding machine into which a cleaner is being poured in accordance with the present invention;

FIG. 2 is an isometric view of a soiled burr located inside the coffee grinding machine of FIG. 1;

FIG. 3 is an isometric view of the soiled burr of FIG. 2 after being cleaned in accordance with the present invention; and

FIG. 4 shows an exemplary embodiment of the cleaner in a tabletized form.

Description:

Recognizing the opportunity to provide a technique, method, and product for cleaning grinders, there is provided a range of human safe products that can be easily introduced into the grinding chamber and cycled through the equipment. In particular, portioning of an appropriate amount of particles in a carefully defined formula mix for grinding through a machine is provided. Some of the particles include, but are not limited to, corn cobs, walnut shells, pecan shells, nuts, rice, dried corn kernels, barley, wheat, and other grain, fiber, legume, nut, bark, and shell products in varying shapes and sizes. One key foundation of the products being tested is a desire to avoid contamination of coffee taste and food safety. For this reason, mostly organic products have been tested to date. However, the inorganic materials also may be equally effective.

The portion packages or bulk pails of a mixture of some of the above noted ingredients in carefully managed formulation are provided. The procedure calls for the following steps:

1. Operator purges coffee grinder of all whole bean coffee and ground coffee residue by running grinder until empty;
2. Recommended dose of grinder cleaning materials is inserted into coffee bean hopper and grinder is run as if grinding coffee;
3. A series of on and off rest periods allows the grinder to adjust to the new substance;
4. A series of changes of grinding fineness insures the movement of the cleaning substance in and out of the grinding chamber;
5. All cleaning substance are ground through grinding equipment and purged as was done with coffee;
6. A recommended and defined amount of fresh coffee is placed in the bean hopper and also sent through the grinder following the procedures in 3, 4, 5 above;
7. Once the above procedure is completed, fresh whole bean coffee is returned to the hopper and coffee preparation resumes; and
8. The cleaning procedure is repeated as necessary.

The types of grinding equipment on which the above mentioned formulation, method, and procedure can be performed on include, but are not limited to: burr, conical burr, blade, free-standing, integrated and superautomatic espresso integrated grinders.

A particular advantage of the present invention is that by delivering a secondary product into enclosed grinding chambers to remove oil and particulate residue, the need for more regular disassembly of grinder mechanisms for cleaning is eliminated. In addition, the method offers the first means of cleaning several types of grinding mechanisms that

are currently fully enclosed (such as those in vending and superautomatic espresso machines).

As described above, many different organic or inorganic materials may be used for cleaning the grinding equipment. By way of example only, the formulation may include more or less than 50% corn cob of varying size particles and a balance of 1-2 other ingredients. Another exemplary formulation also may include a mixture of corn meal, bulgar wheat, oatmeal and quick oats, grits and rice hulls. It is to be noted, however, that the formulation may vary based on the type of machine and particular cleaning requirements of the particular machine.

Based on the fact that the average amount of coffee used to brew the standard pot is 70g to 100g, between 100g and 400g of product may be required to clean the machine. The process may have to be repeated several times to ensure that the grinder is adequately cleaned.

As shown in FIG. 1, the cleaning material 10 is poured from a package 12 into the coffee grinding machine 14, just as coffee beans would be poured in for grinding in normal operation. As the materials 10 move through the machine 14, they create contact with the grinding burrs 16, 18.

FIG. 2 shows the soiled burr 16 prior to the cleaning material formulation 10 being deposited into the grinding machine 14. As the burrs 16, 18 grind up the cleaning materials 10, the coarseness of the cleaning materials creates a friction on the burrs that causes the soil 20 from the burrs to be rubbed or knocked off. This results in a significantly cleaner burr, as shown in FIG. 3. Depending on the interval between cleanings, the type of coffee being ground and other factors, the cleaning step is repeated until the burrs 16, 18 are adequately cleaned.

FIG. 4 shows an alternative embodiment of the present cleaning method and system. Rather than offering a mixture of varying sized grains and ingredients, the cleaner

mixture is tabletized. A particular advantage of tabletizing the materials is that the cleaner may be introduced into the coffee machine in a uniform unit dose. Therefore, the change of product form from a powdery mixture to tablets or pellets simplifies dosing. Dosage heretofore was based on product weight. Now, however, it is possible to recommend dosage based on a number of tablets proportionate to the type of grinder being used (e.g. 10 tablets for an espresso grinder, 20 tablets for a commercial "shop" grinder, etc.) As a result, the operator is not required to measure out each dose using measuring spoons or cups, but rather by dropping the appropriate number of tablets into the coffee machine. This results in significantly easier and more convenient operation.

Furthermore, dosing of the product directly affects the process of purging the grinder. Therefore, to ensure that the cleaning materials do not impact the taste of the coffee, the amount of grinder cleaning product used may be calibrated to each grinder's exit channel (area where last bit of ground coffee is held within the grinder).

Tabletization also helps protect the product and ease its transport. Although the tablets are shown in FIG. 4 in an exemplary size relative to that of a quarter, the tablets may be any size or shape as required for a particular coffee machine. For example, tablets 15mm in diameter and 5mm in thickness may be used with outstanding results.

To form the cleaning materials into tablets, the mixture is placed in a commercial tablet making machine and bound by pressure and any of number of binding additives. These additives include, among others, any or all of the following: alcohol, glycerine, food and human safe pharmaceutical binders, propylene glycol, herbal extracts, and other similar, food safe tablet making ingredients.

Other alternatives to the tablet form factor include extrusion of the mixture into pellets or other similar sized and shaped pieces. For example, tablets may be produced that are roughly the size and shape of a coffee bean. This sizing allows simple and consistent delivery of the product into the grinding chamber since coffee machine chambers have protective devices to prevent entry of foreign objects much larger than a coffee bean.

An exemplary approximate size of the caplet type of tablet is 8 mm to 12 mm long with roughly 4 mm in thickness. The same targeted size would be prepared for pellets or extruded matter.

As an added optional feature, the color of the cleaning product, whether in tablet form or loose, may be altered or adjusted. Since the general color of the cleaning products being used is much lighter than coffee, there may be potential concern regarding visual contamination of newly ground coffee with cleaning composition. Accordingly, several food-safe dyes and colorings may be used to give the final product a uniform, coffee/caramel color. This coloration reduces operator concern about lingering residue and reduces the time required to purge the grinder chamber of all remaining cleaning compound.

While the invention has been described in conjunction with a specific embodiment thereof, it is evident that many alterations, modifications and variations will be apparent to those skilled in the art in light of the foregoing description. Thus, it should be understood that the invention is not limited by the foregoing description, but embraces all such alterations, modifications and variations in accordance with the spirit and scope of the appended claims.

Claims:

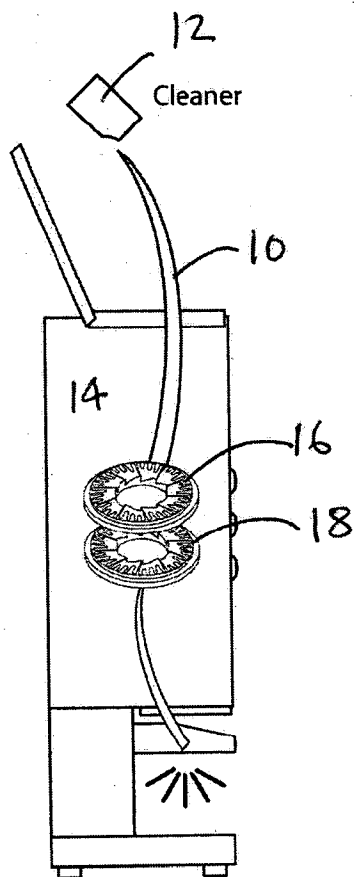
What is claimed is:

1. A method for cleaning a coffee grinder comprising:
 - apportioning a predetermined amount of coarse material;
 - inserting said coarse material into the coffee grinder;
 - grinding said coarse material using the coffee grinder; and
 - purging said coarse material from the coffee grinder.

2. The cleaning method of claim 1 wherein the coarse material comprises one or more of the following organic materials:
 - (a) legumes;
 - (b) corn husks;
 - (c) walnut shells;
 - (d) pecan shells;
 - (e) nuts;
 - (f) rice;
 - (g) dried corn kernels;
 - (h) barley;
 - (i) wheat;
 - (j) grain;
 - (k) fiber;
 - (l) legume;
 - (m) nut;
 - (n) bark;
 - (o) shell;
 - (p) corn meal;
 - (q) bulgar wheat;
 - (r) oatmeal;
 - (s) quick oats;

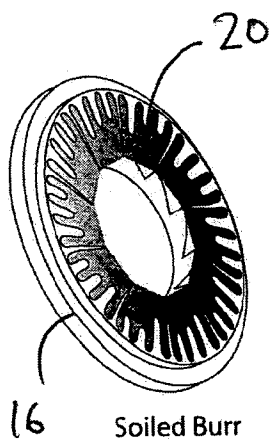
- (t) grits; and
- (u) rice hulls.

3. The cleaning method of claim 2 wherein the organic material comprises substantially 50% corn husks.
4. The cleaning method of claim 3 wherein the organic material comprises at least 50% corn husks.
5. The cleaning method of claim 1, wherein the coarse material is in the form of a tablet.
6. The cleaning method of claim 5, wherein the tablet is sized and shaped like a coffee bean.
7. The cleaning method of claim 1, wherein the coarse material is colored.



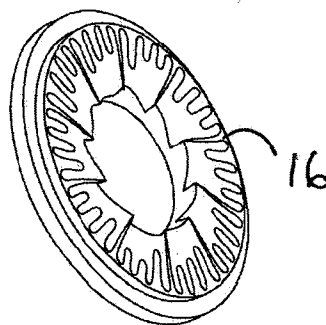
Grinder Side View
Method of Delivery

FIG. 1



Soiled Burr

FIG. 2



Clean Burr

FIG. 3

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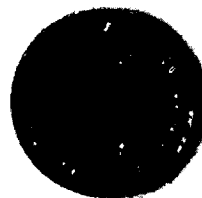
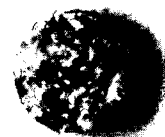
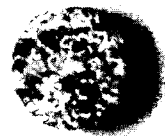
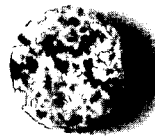


FIG. 4